Fault Tolerant, Radiation Hard DSP, Phase II

Completed Technology Project (2005 - 2007)

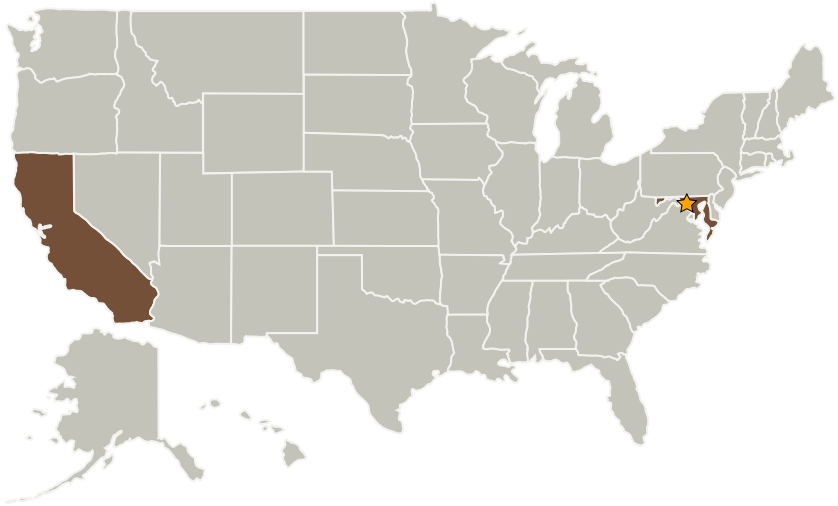
Project Introduction

We propose to develop a radiation tolerant/hardened signal processing node, which effectively utilizes state-of-the-art commercial semiconductors plus our innovative space radiation mitigation. Building on our Phase I success, a unique combination of DSP and FPGA hardware and software will be demonstrated, including in space radiation environments. The resulting product will enable dramatically improved on board signal processing capabilities.

Anticipated Benefits

Potential NASA Commercial Applications: The technology and products developed under this SBIR program have the same benefits for applications in the DoD and private sectors that it has for NASA. There are a wide range of DoD programs with requirements for very high on board data and signal processing. These include new LEO and GEO space platforms such as AEHF, GPS follow ons, RADARSATs, the transformational satellite (TSAT) and advanced polar system (APS) satellite. Other applications include both DoD and NRO intelligence/reconnaisance satellites and the DoD weather satellites (DMSP). Other non-DoD US Government applications include the fleet of LEO and GEO weather satellites operated by the National Oceanographic and Atmospheric Administration (NOAA). Private sector applications include telecommunication satellites and foreign government and commercial space systems (ESA, CNES, JAXA).

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
Space Micro, Inc.	Supporting Organization	Industry	San Diego, California

Primary U.S. Work Locations	
California	Maryland

Project Transitions

December 2005: Project Start

December 2007: Closed out

Closeout Summary: Fault Tolerant, Radiation Hard DSP, Phase II Project Image

Project Management

Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
David Czajkowski

Technology Areas

Primary:

- TX10 Autonomous Systems
  - TX10.1 Situational and Self Awareness
    - TX10.1.1 Sensing and Perception for Autonomous Systems